1
00:00:04,519 --> 00:00:02,959
the Marshall Space Flight Center is

2
00:00:06,560 --> 00:00:04,529
known as a repulsion Center but it also

3
00:00:08,120 --> 00:00:06,570
has made many contributions in science

4
00:00:11,029 --> 00:00:08,130
we're here to talk with a man who spent

5
00:00:12,980 --> 00:00:11,039
30 years here in science dr. Don Fraser

6
00:00:15,350 --> 00:00:12,990
thanks very much for taking the time to

7
00:00:17,540 --> 00:00:15,360
talk to us today thank you let's start

8
00:00:20,029 --> 00:00:17,550
back when you were small boy growing up

9
00:00:21,880 --> 00:00:20,039
in Detroit how did you discover that you

10
00:00:25,429 --> 00:00:21,890
wanted it to become involved in science

11
00:00:28,130 --> 00:00:25,439
if I saw a picture of someone from NASA

12
00:00:30,529 --> 00:00:28,140
I had utmost respect for that person

13
00:00:34,040 --> 00:00:30,539

because that was one of the people that

14
00:00:36,560 --> 00:00:34,050
John Glenn and others like him depended

15
00:00:39,920 --> 00:00:36,570
on and I said this is this has got to be

16
00:00:43,010 --> 00:00:39,930
a first-rate organization and so I

17
00:00:44,540 --> 00:00:43,020
wanted to be a part of it one of the

18
00:00:47,410 --> 00:00:44,550
things that I think we've contributed

19
00:00:50,360 --> 00:00:47,420
here from NASA is the ability to grow

20
00:00:52,340 --> 00:00:50,370
really good crystals some of these

21
00:00:56,150 --> 00:00:52,350
crystals are important and such things

22
00:00:58,009 --> 00:00:56,160
as infrared detectors for example you

23
00:01:00,259 --> 00:00:58,019
know you want a certain degree of

24
00:01:03,709 --> 00:01:00,269
perfection I mentioned earlier the

25
00:01:06,859 --> 00:01:03,719
possibility of nonlinear optics as a

26
00:01:10,070 --> 00:01:06,869
futuristic way of doing computing for

27
00:01:12,859 --> 00:01:10,080
example we have demonstrated that in the

28
00:01:14,600 --> 00:01:12,869
past protein crystal growth that was a

29
00:01:17,260 --> 00:01:14,610
biggie back in the microgravity days

30
00:01:21,230 --> 00:01:17,270
where you can grow a perfect crystal

31
00:01:23,749 --> 00:01:21,240
protein you can do x-ray diffraction on

32
00:01:26,600 --> 00:01:23,759
that perfect crystal and sometimes you

33
00:01:30,170 --> 00:01:26,610
can do some pharmaceutical type how does

34
00:01:31,819 --> 00:01:30,180
aspirin work for example and so that was

35
00:01:34,340 --> 00:01:31,829
a biggie protein crystal growth that was

36
00:01:35,990 --> 00:01:34,350
a big deal back during the microgravity

37
00:01:37,730 --> 00:01:36,000
days that that there was a lot of

38
00:01:41,060 --> 00:01:37,740

accomplishment of their divergent Luke

39
00:01:43,219 --> 00:01:41,070
astounded UAB did quite a bit of work in

40
00:01:45,950 --> 00:01:43,229
that area and others not just in the

41
00:01:49,609 --> 00:01:45,960
production of certain types of aerogels

42
00:01:52,959 --> 00:01:49,619
for example in microgravity or zeolites

43
00:01:55,039 --> 00:01:52,969
people have used it for purification of

44
00:01:57,410 --> 00:01:55,049
atmosphere I'm talking about

45
00:01:58,370 --> 00:01:57,420
microgravity related things but there

46
00:02:01,100 --> 00:01:58,380
are other things that are non

47
00:02:03,289 --> 00:02:01,110
microgravity related that NASA of course

48
00:02:06,139 --> 00:02:03,299
from the propulsion standpoint have been

49
00:02:08,480 --> 00:02:06,149
very instrumental in developing NASA is

50
00:02:10,670 --> 00:02:08,490
not just this side of the you know

51
00:02:13,300 --> 00:02:10,680
there's also the telescope's as the

52
00:02:15,640 --> 00:02:13,310
optics you know this Chandra you know

53
00:02:17,530 --> 00:02:15,650
there's our ability to look out at the

54
00:02:20,140 --> 00:02:17,540
edge of the universe near the edge of

55
00:02:22,839 --> 00:02:20,150
the universe back in time there near the

56
00:02:24,820 --> 00:02:22,849
creation you know we've done so many

57
00:02:27,190 --> 00:02:24,830
things that's difficult to compare

58
00:02:29,199 --> 00:02:27,200
what's more important than others we're

59
00:02:31,540 --> 00:02:29,209
getting more into earth scientists where

60
00:02:33,610 --> 00:02:31,550
we're looking at moving detectors on

61
00:02:37,660 --> 00:02:33,620
platform moving platforms and

62
00:02:39,729 --> 00:02:37,670
determining melting of ice how fast that

63
00:02:42,970 --> 00:02:39,739

rate is and this has a lot to do with

64
00:02:44,680 --> 00:02:42,980
our current focus on climate control and

65
00:02:47,009 --> 00:02:44,690
climate conditions and that sort of

66
00:02:49,870 --> 00:02:47,019
thing so all of these things are

67
00:02:52,780 --> 00:02:49,880
probably not comparable to each other

68
00:02:55,240 --> 00:02:52,790
but all are extremely important if not

69
00:02:57,400 --> 00:02:55,250
to our existence certainly to our

70
00:02:59,680 --> 00:02:57,410
knowledge of the universe that we live

71
00:03:01,270 --> 00:02:59,690
in computing optical computing and

72
00:03:04,240 --> 00:03:01,280
quantum computing and these sort of

73
00:03:06,809 --> 00:03:04,250
things that that nASA has played a role

74
00:03:09,190 --> 00:03:06,819
is playing a role in helping to develop

75
00:03:11,890 --> 00:03:09,200
flexible electronics you know the fact

76
00:03:16,449 --> 00:03:11,900
that not we'll be able to print circuits

77
00:03:18,160 --> 00:03:16,459
and photovoltaics on paper and very

78
00:03:21,270 --> 00:03:18,170
light low-mass your NASA's very

79
00:03:24,819 --> 00:03:21,280
interesting low-mass and I efficiency

80
00:03:27,220 --> 00:03:24,829
devices we can print a way of collecting

81
00:03:30,580 --> 00:03:27,230
energy from the Sun and storing it and

82
00:03:32,229 --> 00:03:30,590
printing the storage medium and printing

83
00:03:34,330 --> 00:03:32,239
light-emitting diodes on a piece of

84
00:03:35,710 --> 00:03:34,340
paper which is what we're working on now

85
00:03:38,319 --> 00:03:35,720
is some of the stuff I'm working on

86
00:03:42,569 --> 00:03:38,329
right now that's going to have a huge

87
00:03:45,160 --> 00:03:42,579
impact on my own personal view and the

88
00:03:46,809 --> 00:03:45,170

nation dr. Fraiser thanks very much for

89
00:03:49,259 --> 00:03:46,819
your time today well I thank you for

90
00:03:52,170 --> 00:03:49,269
taking the time with me this has been

91
00:03:55,660 --> 00:03:52,180
nice to talk about and it's not just

92
00:03:56,949 --> 00:03:55,670
work anymore it's fun Bonnie it was so

93
00:03:58,660 --> 00:03:56,959
gracious of you to have us in your home

94
00:04:01,240 --> 00:03:58,670
today can you tell us what it was like

95
00:04:02,830 --> 00:04:01,250
first of all working at Redstone and

96
00:04:06,069 --> 00:04:02,840
then tell me what the first meeting was

97
00:04:08,740 --> 00:04:06,079
like well he was so friendly so cordial

98
00:04:14,170 --> 00:04:08,750
he was just uh I felt like I had known

99
00:04:18,690 --> 00:04:14,180
him he was a he was very nice man you

100
00:04:22,330 --> 00:04:18,700
really became his right-hand lady right

101
00:04:26,920 --> 00:04:22,340
well a lot of people call me that he

102
00:04:35,740 --> 00:04:30,820
what was your role with my role well the

103
00:04:41,080 --> 00:04:35,750
secretary flunky whatever there were so

104
00:04:44,680 --> 00:04:41,090
many things to do and he was a very busy

105
00:04:48,820 --> 00:04:44,690
man of course and was in conferences all

106
00:04:50,590 --> 00:04:48,830
day I would have by the time he'd come

107
00:04:55,719 --> 00:04:50,600
from the meeting I'd have his briefcase

108
00:04:57,730 --> 00:04:55,729
packed with reading material and then we

109
00:05:01,060 --> 00:04:57,740
would go through the stack on his desk i

110
00:05:03,520 --> 00:05:01,070
had it prioritized and he always took

111
00:05:05,409 --> 00:05:03,530
his briefcase home with him and the next

112
00:05:09,330 --> 00:05:05,419
morning when he came in he would turn it

113
00:05:14,860 --> 00:05:09,340

upside down dump it on my desk and say I

114
00:05:18,129 --> 00:05:14,870
did my homework he was kind of the

115
00:05:22,290 --> 00:05:18,139
absent-minded professor he would leave

116
00:05:26,439 --> 00:05:22,300
his umbrellas or he usually carried his

117
00:05:28,210 --> 00:05:26,449
pillow with him on every trip because he

118
00:05:33,159 --> 00:05:28,220
had to have it he said he couldn't sleep

119
00:05:37,659 --> 00:05:33,169
without his pillow and he'd leave it at

120
00:05:39,969 --> 00:05:37,669
the hotels I'd have to find somebody who

121
00:05:42,939 --> 00:05:39,979
was on trowel in Washington or wherever

122
00:05:45,070 --> 00:05:42,949
he had been to go get his pillow and

123
00:05:47,200 --> 00:05:45,080
bring it when they come back to Marshall

124
00:05:49,570 --> 00:05:47,210
so he decides to switch you from the

125
00:05:52,450 --> 00:05:49,580
army or move everyone from the army to

126
00:05:54,339 --> 00:05:52,460
NASA and President Eisenhower comes to

127
00:05:56,980 --> 00:05:54,349
Marshall tell me about that you got to

128
00:06:00,909 --> 00:05:56,990
escort him right yes I did they had an

129
00:06:03,730 --> 00:06:00,919
outdoor stage and I got to escort

130
00:06:06,450 --> 00:06:03,740
President Eisenhower to the stage dr.

131
00:06:09,520 --> 00:06:06,460
von Braun escorted mrs. Marshall and

132
00:06:11,170 --> 00:06:09,530
that's when he named us official at the

133
00:06:14,379 --> 00:06:11,180
george c marshall space flight center

134
00:06:16,839 --> 00:06:14,389
which now is just goes by Marshall Space

135
00:06:19,870 --> 00:06:16,849
Flight Center but it was in honor of the

136
00:06:23,920 --> 00:06:19,880
late general george c marshall so what

137
00:06:29,320 --> 00:06:23,930
did he say to you once his rocket made

138
00:06:32,800 --> 00:06:29,330

it to the moon well he went from the

139
00:06:35,830 --> 00:06:32,810
cape to houston to Mission Control of

140
00:06:38,430 --> 00:06:35,840
course to watch the mission and he

141
00:06:40,279 --> 00:06:38,440
stayed through the lunar landing and and

142
00:06:43,309 --> 00:06:40,289
so I didn't see him

143
00:06:45,589 --> 00:06:43,319
talk to him during that period until he

144
00:06:48,739 --> 00:06:45,599
got back to the office and he came in

145
00:06:51,529 --> 00:06:48,749
with a big grin on his face and said

146
00:06:55,100 --> 00:06:51,539
mission accomplished went straight to

147
00:06:57,980 --> 00:06:55,110
his desk then back to work back to work

148
00:06:59,839 --> 00:06:57,990
when I was his desk was full Harvard

149
00:07:01,279 --> 00:06:59,849
Bonnie it was so sweet of you let us

150
00:07:04,429 --> 00:07:01,289
come see you today we are so

151
00:07:17,359 --> 00:07:04,439
appreciative thanks a lot my pleasure my

152
00:07:19,129 --> 00:07:17,369
pleasure morreion was really exciting to

153
00:07:21,230 --> 00:07:19,139
meet so many people instrumental to the

154
00:07:23,420 --> 00:07:21,240
success of this Center very humbling and

155
00:07:25,279 --> 00:07:23,430
inspiring a great group of people and a